

The Office Action requires corrected drawings in response to this Action. Corrected drawings were previously filed on September 26, 2002. Additional copies of the corrected drawings are also supplied herewith.

Claims 6-8 were rejected under 35 USC §112, second paragraph, as indefinite. An amendment to claim 6 makes explicit that the claimed range is between “about 0.2 and about 0.66,” avoiding any possibility of ambiguity.

Claims 1-8 were rejected under 35 USC §103(a) as being unpatentable over Chambers et al., U.S. patent 5,626,410, in view of Industrial Fiber Optics, Inc., *Adventures in Fiber Optics Kit*, pp. 9-10 (1998), hereinafter “*AFOK*.” Applicant respectfully traverses the rejection of claim 2, and urges that there is no motivation in the references themselves to combine them so as to produce the structure of claim 2, which has been amended to place it in independent format.

Some of the problems in scaling up rear-projection displays can be ameliorated by tiling multiple image sources, then combining their outputs with a faceplate that includes a fiber-optic array. However, the Specification emphasizes that this alone does not remove all size limits. Page 2 line 26 to page 3 line 3 emphasizes that the fused fiber-optic faceplates now used in displays cannot be manufactured in sizes larger than about one square foot, and that they are expensive even in smaller sizes. However, it is not possible to tile multiple fused fiber-optic sheets to make larger displays (or to make somewhat smaller ones more inexpensively, because “dead fibers” at the edges create visible black seams on the tile boundaries, as noted at page 2 line 29 to page 3 line 6.

The Chambers reference tiles image sources to create a thinner display, but it has no suggestion of fabricating a fiber-optic faceplate 40, Fig. 5, from smaller pieces. Had he tried to produce such a faceplate, he would have failed. because of the black seams noted above.

The *AFOK* reference notes only that one specific material, Ulexite, comprises bundled fibers that can transmit an image. The reference notes no special properties of Ulexite that might make it more or less suitable for a projection-system faceplate than any other material.

Applicant has discovered that fiber-optic arrays can be tiled to increase the size of a projection system, if the pitch of their fibers is sufficiently small; see page 6 lines 18-22 of the Specification. Neither of the references contains the slightest suggestion that a material having

this property could enable larger and/or less expensive displays by permitting smaller more easily manufacturable fiber-optic arrays to be tiled together.

No combination of the references teaches or suggests the “plurality of ... tiled optical faceplates” of claim 2. Chambers tiles only the image sources, not the faceplate; *AFOK* tiles nothing at all. Claim 2 also recites that the faceplates are “seamlessly” tiled, and that this feature is accomplished by means of a “fibrous crystal.” Even had Chambers thought of tiling faceplates, he could not have done so in an acceptable---i.e., seamless---manner without deliberately selecting a fibrous crystal material. This selection can only be accomplished in the light of Applicant’s disclosure that a fibrous crystal will produce an optically seamless faceplate. Again, the *AFOK* reference has no mention that the fibrous crystal Ulexite has a small fiber pitch that might allow seamless tiling, or indeed that it could be tiled for any reason in any kind of optical system.

Claim 2 therefore defines patentably over any combination of the Chambers and *AFOK* references, even one that would be clearly improper under 35 U.S.C. §103 for lack of motivation to combine. The Office Action in fact did not consider the above noted recitations in claim 2, and advanced no support whatsoever in either of the cited references for rejecting claim 2.

Claims 3-6 have been amended to depend from claim 2. They define over the art for the same reasons, and for other reasons as well. For example, claim 5 recites “artificially grown” and “synthesized” fibrous crystals. *AFOK* mentions no particular kind of Ulexite, and does not even hint that it is available in these varieties. Claims 8 and 9 depend from claim 6.

New claims 33-37 also depend from amended claim 2. Claim 33 specifies tiling “without a visible seam.” This would be beyond the capability of Chambers, except though Applicant’s disclosure that a particular type of material could be so tiled. Claim 34 notes the special property of fibrous crystals that enables seamless tiling, a fiber size “on the scale of nanometers,” rather than the micrometer scale or pitch of glass and other materials, as described on page 6 lines 19-22 of the Specification. Claim 36 “includes a dopant” in the fibrous crystal, as noted on page 6 lines 5-8. Neither of the references suggests a dopant for any purpose for any material. In claim 37, the Ulexite is “recrystallized natural Ulexite.” The *AFOK* reference, the only one suggesting any kind of fibrous crystal, has no suggestion that Ulexite can be recrystallized from a natural form, and certainly offers no reason for doing so.

New independent claim 38 includes the recitations of optical faceplates that are not only “tiled,” but tiled “seamlessly,” and fabricated of a “fibrous crystal.” Claim 38 is therefore patentable over the art for the same reason as is amended claim 2.

New claims 39-45 depend from claim 38, and introduce other distinguishing features. For example, claim 41 notes not only the LCLV devices of Chambers, but also “image intensifiers, field flatteners, ..., X-ray imaging devices, CRT displays, and remote viewers.” Claim 43 introduces tiling “without a visible seam,” attainable because the fiber size has a “scale of nanometers,” claim 44. Claim 45 recites that the fibrous crystal has a size or pitch “significantly less than that of glass,” as described on page 6 lines 19-22 of the Specification.

Conclusion

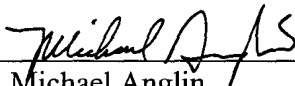
Applicant urges that the claims are in condition for allowance and respectfully requests reexamination and allowance of the pending claims. The entry of this amendment is proper under 37 C.F.R. §1.116 in that it requires no new search. The Examiner is invited to telephone Applicant’s attorney at (612) 373-6971 to facilitate prosecution of the Application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,
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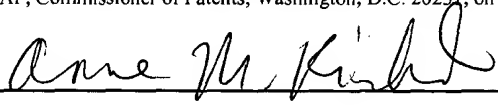
Date 20 Jan 2003

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